

PRODUCT DATA SHEET	TANTALUM PRODCUTS
LATEST REVISION	Date: 01-01-2026
Product Name	TANTALUM PRODUCTS
Description	<p>Tantalum is a dark blue-gray, dense, and highly ductile refractory metal. It is uniquely valued because it combines the extreme melting point of a refractory metal with the superb corrosion resistance of a noble metal.</p> <ul style="list-style-type: none"> <li>• Chemical Symbol: Ta</li> <li>• Atomic Number: 73</li> <li>• CAS Number: 7440-25-7</li> <li>• Standard Forms Available: Wire, capacitor-grade powder, sheets, plates, foils, rods, seamless tubing, and sputtering targets.</li> <li>• Common Industry Specifications: ASTM B364 (Ingots), ASTM B365 (Rod &amp; Wire), ASTM B708 (Plate, Sheet, Strip, Foil), ASTM B521 (Seamless/Welded Tubes).</li> </ul>
Application	<p>Electronics: Tantalum capacitors (dominates the market due to its ability to form a microscopically thin, high-stability dielectric oxide layer (<math>Ta_2O_5</math>)). Used widely in smartphones, automotive electronics, and military hardware.</p> <p>Chemical Processing Equipment: Linings for reaction vessels, bayonet heaters, heat exchangers, thermowells, and valves handling highly corrosive hot acids.</p> <p>Medical Implants: Bone fixations, cranial plates, and prosthetic joints. Tantalum is entirely biocompatible, non-irritating to body tissues, and naturally promotes bone ingrowth (osseointegration).</p> <p>High-Temperature Metallurgy: Components for vacuum furnaces and alloy additions in nickel-based superalloys for jet engine turbine blades.</p>
Chemical Properties	<p>Tantalum (Ta): <math>\geq 99.95\%</math> (High-purity grades reach 99.99% or 99.999%)</p> <p>Niobium (Nb): 0.010%(Naturally occurs with Ta and is the hardest trace element to separate)</p>

	Iron (Fe): $\leq 0.005\%$ Oxygen (O): $\leq 0.010\%$ Nitrogen (N): $\leq 0.005\%$ Carbon (C): $\leq 0.005\%$ Hydrogen (H): $\leq 0.001\%$	
Physical Properties		
Property	Value	
Density	16.65g/cm <sup>3</sup>	
Melting Point	2996°C	
Thermal Conductivity	57.5 w/m.k	
Coeff. of Thermal Expansion	$6.3 \times 10^{-6}/k$	
Tensile Strength (Ultimate)	240-310Mpa	
Yield Strength (0.2% Offset)	140-200Mpa	
Modulus of Elasticity	186GPa	